Claims

1. A method of simulating tracer fire from a weapon (400) by means of a non-ballistic fire simulation means (200) attached thereon, comprising:

projecting a light spot (320) into a visual field (240) of a user of the weapon (400) such that the light spot (320) is observable by the user when firing at a target (310), wherein the light spot (320) indicates a non-ballistic estimation of a point of impact for a simulated bullet;

turning on the light spot (320) at a first point in time ($t_1$) after triggering a simulated bullet; and

turning off the light spot (320) at a second point in time ($t_2$) after triggering the simulated bullet, a switched-on interval ($t_{ON}$) between the first point in time ($t_1$) and the second point in time ($t_2$) overlapping a laser interval ($T_{laser}$) during which at least one light pulse ($P_L$) is transmitted from the fire simulation means (200) to simulate the bullet fired from the weapon (400) to the target (310).

2. A method according to claim 1, **characterized by** the first point in time ($t_1$) coinciding with a point in time at which a first light pulse ($P_L$) is transmitted from the fire simulation means (200).

3. A method according to any one of the claims 1 or 2, **characterized by** the switched-on interval ($t_{ON}$) being substantially longer than the laser interval ($T_{laser}$).

4. A method according to any one of the preceding claims, **characterized by** preventing a light spot (320) from being turned on during an inhibiting interval ($T_{block}$) after that a previous light spot (320) has been turned on ($t_1$).

5. A method according to any one of the preceding claims,

**characterized by** varying at least one of the first point in time ($t_1$) and the second point in time ($t_2$) according to a stochastic algorithm.

6. A method according to claim 5, **characterized by** the stochastic algorithm being adapted to reflect a bullet light-up parameter of a particular type of tracer ammunition.

7. A method according to any one of the preceding claims, **characterized by** the estimated point of impact representing an endpoint (420) of a line of sight (430) from the muzzle (415) being parallel to a longitudinal symmetry axis of the barrel (410)

8. A method according to claim 7, **characterized by** the switched-on interval ($t_{ON}$) representing 1 – 20 % of an estimated time of flight ($t_{flight}$) between the muzzle (415) and the estimated point of impact for the corresponding live bullet

9. A method according to claim 8, **characterized by** calculating the estimated time of flight ($t_{flight}$) by means of a non-ballistic algorithm.

10. A computer program directly loadable into the internal memory of a digital computer, comprising software for accomplishing the steps of any of the claims 1 – 9 when said program is run on a computer.

11. A computer readable medium, having a program recorded thereon, where the program is to make a computer accomplish the steps of any of the claims 1 – 9.

12. A fire simulation means (200) for simulating tracer fire to a user adapted to be attached to a weapon (400), **characterized in that** it comprises:

a light projecting means (210-230) adapted to project a light spot (320) into the user's visual field (240) such that the light spot (320) is observable by the user when firing at a target (310), wherein the light spot (320) indicates a non-ballistic estimation of a point of impact for a simulated bullet, the light projecting means (210-230) being adapted to turn on the light spot (320) at a first point in time ($t_1$) after triggering a simulated bullet, and turn off the light spot at a second point in time ($t_2$) after triggering the simulated bullet, and

a laser unit (260) adapted to, during a laser interval ($T_{laser}$) after triggering the simulated bullet, transmit at least one light pulse ($P_L$) in a direction of the target (310) to simulate the fired bullet from the weapon (400) to the target (310), wherein a switched-on interval ($t_{ON}$) between the first point in time ($t_1$) and the second point in time ($t_2$) overlaps the laser interval ($T_{laser}$).

13. A fire simulation means (200) according to claim 12, **characterized in that** the light projecting means (210-230) comprises:

a light source (220) adapted to produce visible light with a relatively narrow wavelength spectrum; and

a wavelength selective mirror surface (230) adapted to reflect light within the relatively narrow wavelength spectrum, and permit transmission of a predominance of electromagnetic energy representing visible light of other wavelengths, wherein the mirror surface (230) is arranged relative the light source (220) such that the light spot (320) occurs in the user's visual field (240) when aiming at the target (310).

14. A fire simulation means (200) according to any one of the claims 12 or 13, **characterized in that** the light projecting means (210-230) and the laser unit (260) are calibrated to one another such that the light spot (320) indicates a point to which the at least one light pulse ($P_L$) is transmitted.

15. A fire simulation means (200) according to any one of the claims 12 - 14, **characterized in that** it is adapted to be integrated into a standard sight means of the weapon (400) adapted for aiming live bullets.

16. A fire simulation means (200) according to any one of the claims 12 - 14, **characterized in that** it is adapted to represent an additional sight means to any standard sight means of the weapon (400) for aiming live bullets.